

REMARKS

The specification has been amended on pages 28 and 29 to correct obvious typographical errors. No new matter is introduced into the application with this amendment.

Claims 1-10 are in the case and presented for reconsideration.

Claim 1 has been amended to clarify the claimed invention with respect to the amount of aromatic modifier. Support for this limitation appears on pages 23 and 24 of the specification.

Claim 6 has been amended to clarify the claimed invention. Support for this amendment is found on page 12 of the specification.

New claims 11- 18 have been added. Support for the new claim 11 is found on page 7 of the specification.

Support for new claims 12 and 13 is found on page 8 of the specification.

Support for new claims 14 and 15 is found on page 30 of the specification.

Support for new claims 16 - 18 is found on pages 23-29 of the specification.

Rejections under 35 U.S.C. § 102

Claims 1, 4-6 were rejected under 35 U.S.C. § 102 (b) as being anticipated by Gerhart (U.S. 2,689,232) and Daughenbaugh et al. (U.S. 5,502,140). Applicant submits that the amendment to claims 1 and 6 avoids this rejection.

One aspect of Applicants' presently claimed invention is a resin composition comprising the reaction product of: (1) about 5% to about 15% by weight a compound of formula I above, and (2) about 85% to about 95% by weight based on the total monomer content of a cyclic diolefin component comprising at least about 50% by weight dicyclopentadiene, wherein the reaction product has a Mz of less than about 2,000.

Another aspect of the presently claimed invention is a resin composition comprising the reaction product of: (1) about 5% to about 25% by weight a compound of

the formula I and (2) about 75% to about 95% by weight based on the total monomer content of a cyclic diolefin component comprising at least about 50% by weight dicyclopentadiene, wherein the reaction product has a M_z of less than about 2,000 made by the process having the steps of (i) providing a solvent to a reactor; (ii) heating the solvent to a temperature of about 200° to about 265° C; and (iii) adding a monomer mixture comprising about 5 to about 25% by weight of the compound of formula I in combination with about 75 to about 95% dicyclopentadiene monomer, at a rate to consume the compound of formula I monomer at the rate at which it is added.

Applicant submits that the presently claimed invention is not anticipated by either Gerhart (U.S. 2,689,232) or Daughenbaugh et al. (U.S. 5,502,140).

Gerhart discloses polymers of cyclopentadiene that are modified by a compound containing the vinylic group ($H_2C=C<$), such as styrene. In preparing the copolymers, all of the reactants, i.e., the styrene and dicyclopentadiene, are introduced into the autoclave reactor at the beginning. The mixture is then heated to a temperature of from about 270°C to 280°C and a pressure of 70 psi. Referring to examples II and III in column 7, the resulting polymers had a ring and ball softening point of 199°C and 201°C, respectively. Although Gerhart does not disclose what the M_z molecular weight is for the resin, Applicant submits that it is substantially more than 2000. As can be seen on pages 20-21 of the current application, when DCPD and styrene are added together and the reactants are heated concurrently with the solvent, it results in a resin having a M_z molecular weight greater than 2000 even with a ring and ball softening point of 94°C. Applicants submit that the polymers of Gerhart which have a ring and ball softening point substantially greater than 94°C would correlate to an even greater M_z molecular weight. Thus, claims 1-18 are not anticipated by Gerhart since Gerhart does not teach or suggest a resin composition having a M_z of less than 2000.

Daughenbaugh et al. discloses a thermally copolymerized hydrocarbon resin consisting essentially of from 40% to 90% by weight of a cyclic diolefin component comprising at least about 50% by weight dicyclopentadiene and from 10% to 60% of a vinyl aromatic compound. Preferred vinyl aromatic compounds include α -methylstyrene; para-methyl- α -methylstyrene; 2,4-diphenyl-4-methyl-1-pentene and

mixtures thereof. In preparing the resins, Daughenbaugh et al. teach adding all of the reactants into the autoclave reactor at the beginning.


Daughenbaugh et al. discloses in samples 1-3 of Table 2, comparative example 2, (column 7, lines 1-20), copolymerization of DCPD and styrene in a ratio of 85/15 and 75/25. The resin had a M_z molecular weight of 1560, 1828, and 4349. The ring and ball softening point for these resins was between 95°C and 100°C. However, Daughenbaugh et al. does not teach or suggest a resin composition comprising the reaction product having about 5% to less than about 15% by weight.

Moreover, Daughenbaugh et al. do not disclose a resin composition being the product of: (1) about 5% to about 25% by weight a compound of the formula I and (2) about 75% to about 95% by weight based on the total monomer content of a cyclic diolefin component comprising at least about 50% by weight dicyclopentadiene, made by the process of (i) providing a solvent to a reactor; (ii) heating said solvent to a temperature of about 200° to about 265°C; and (iii) adding a monomer mixture comprising about 5 to about 25% by weight of the compound of formula I in combination with about 75 to about 95% dicyclopentadiene monomer. Daughenbaugh et al. disclose adding all the materials in the autoclave reactor at the same time and heating the materials together and does not teach or suggest to first heat the solvent to a temperature of about 200° to about 265°C before adding the monomer mixture to the reactor.

Accordingly, Applicants submit that claims 1-18 are not anticipated by Gerhart (U.S. 2,689,232) or by Daughenbaugh et al. (U.S. 5,502,140) and request that the 35 U.S.C. §102(b) rejection be withdrawn and the examiner pass the application to allowance at the earliest convenience.


Respectfully submitted,

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Jo Ann White

May 21, 2003
Date